

CLAIMS

1. A method for providing cooling to superconducting cable comprising:

(A) passing liquid cryogen from a storage vessel to a vacuum vessel, and flashing a portion of the liquid cryogen into the vacuum vessel to produce vapor and cooled liquid cryogen within the vacuum vessel;

(B) pumping vapor out from the vacuum vessel; and

(C) passing cooled liquid cryogen from the vacuum vessel to superconducting cable and providing cooling from the cooled liquid cryogen to the superconducting cable.

2. The method of claim 1 wherein the liquid cryogen comprises liquid nitrogen.

3. The method of claim 1 wherein the pressure of the vacuum vessel is at least 1 pound per square inch less than the pressure of the storage vessel.

4. The method of claim 1 wherein the vapor pumped out from the vacuum vessel is heated prior to pumping and then released to the atmosphere.

5. The method of claim 1 wherein the liquid cryogen is still in a liquid state after the provision of cooling to the superconducting cable.

6. The method of claim 5 wherein the cooled liquid cryogen, after the provision of cooling to the superconducting cable, is passed to the vacuum vessel.

7. A method for providing cooling to superconducting cable comprising:

(A) passing liquid cryogen from a storage vessel to a vacuum vessel, and flashing a portion of the liquid cryogen into the vacuum vessel to produce vapor and cooled liquid cryogen within the vacuum vessel;

(B) pumping vapor out from the vacuum vessel; and

(C) cooling refrigerant fluid by indirect heat exchange with the cooled liquid cryogen to produce cooled refrigerant fluid, passing the cooled refrigerant fluid to superconducting cable, and providing cooling from the cooled refrigerant fluid to the superconducting cable.

8. The method of claim 7 wherein the liquid cryogen comprises liquid nitrogen.

9. The method of claim 7 wherein the pressure of the vacuum vessel is at least 1 pound per square inch less than the pressure of the storage vessel.

10. The method of claim 7 wherein the vapor pumped out from the vacuum vessel is heated prior to pumping and then released to the atmosphere.